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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte PAUL EDWARD DUGGAN¹

Appeal 2015-004758
Application 12/211,381
Technology Center 3700

Before: GEORGE R. HOSKINS, LEE L. STEPINA, and
ARTHUR M. PESLAK, *Administrative Patent Judges*.

STEPINA, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134 from the Examiner's decision to reject claims 1, 4, 5, 19, 20, 22, 23, 31, 32, 46, 47, and 49–52.² We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM and designate our affirmance as a NEW GROUND OF REJECTION pursuant to our authority under 37 C.F.R. § 41.50(b).

¹ Appellant identifies C4 Carbides Limited as the real party in interest (Appeal Br. 3).

² Claims 2, 3, 6–18, 21, 24–30, 33–45, and 48 are cancelled (App. Br. 17–19).

CLAIMED SUBJECT MATTER

The claims are directed to a blade, such as a band saw blade. Claim 1, reproduced below with emphasis added, is illustrative of the claimed subject matter.

1. A linear blade comprising:

a strip having a length measured in a cutting direction, a width perpendicular to the length, and a thickness perpendicular to the width, wherein the length is greater than the width, and the width is greater than the thickness, the strip having a main body portion and an edge portion running lengthwise along the main body portion, wherein the length of the strip forms a length of the linear blade, the strip having a cross-section in a plane defined by the width and the thickness that is the same at all positions along the length of the blade, and

cutting medium secured to the strip along the edge portion, wherein the edge portion has an edge face and side flanks extending from the edge face to the main body portion, the face and flanks being planar surfaces meeting at right angles at edges, the edges extending along the strip and spaced from the main body portion, and

wherein *the edge portion is thinner than the main body portion* at substantially all positions along the blade, and

wherein the edge portion meets the main body portion at a step on at least one face of the strip, and

wherein the cutting medium is a grit of suitable material other than diamond secured to the strip by cascading onto the edge portion after *braze material* has been applied to the edge portion, and prior to heating the strip to secure the cutting medium by *brazing*, and

wherein the *braze material* is in the form of a paste, containing a *braze medium* in particle form, suspended in an adhesive component.

REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Catlin	US 3,630,699	Dec. 28, 1971
Dion	US 7,373,857 B2	May 20, 2008
Igarashi	JP 10-202425 (A)	Aug. 4, 1998
Matsuda '721 ³	JP 62-193721 (A)	Aug. 25, 1987
Matsuda '165	JP 61-197165 (A)	Sept. 1, 1986
Addison	GB 2 217 243 A	Oct. 25, 1989

REJECTIONS

(I) Claims 1, 4, 5, 19, 22, 23, 31, 32, 46, 49, and 50 are rejected under 35 U.S.C. § 103(a) as unpatentable over Igarashi, Matsuda '721, and Catlin.

(II) Claims 20 and 47 are rejected under 35 U.S.C. § 103(a) as unpatentable over Igarashi, Matsuda '721, Catlin, and Dion.

(III) Claim 51 is rejected under 35 U.S.C. § 103(a) as unpatentable over Igarashi, Matsuda '721, Catlin, and Addison.

(IV) Claim 52 is rejected under 35 U.S.C. § 103(a) as unpatentable over Igarashi, Matsuda '721, Catlin, and Matsuda '165.

OPINION

Rejection (I)

Appellant argues for the patentability of claims 1, 4, 5, 19, 22, 23, 31, 32, 46, 49, and 50 as a group. Appeal Br. 11–15. We take independent claim 1 as representative. *See* 37 C.F.R. § 41.37(c)(1)(iv).

³ Our citations to the text of Matsuda '721 refer to the English translation of this reference made of record on February 5, 2014.

The Examiner finds that Igarashi discloses most of the features recited in claim 1 except for the recited geometry of the edge portion and the details regarding brazing material. Final Act. 2–5. Nonetheless, the Examiner finds that Matsuda '721 teaches the features relating to the recited edge portion geometry, and Catlin teaches the claimed requirements relating to brazing material. Final Act. 4–5. The Examiner reasons that it would have been obvious to provide a step portion for the cutting medium on the cutting body of Igarashi to create a thinner section of the cutting part without decreasing the strength of the saw in order to increase the bond strength of the grit material to the blade and increase the durability of the blade. Final Act. 5 (citing Matsuda '721, 4, ll. 7–19). As for the requirements relating to brazing material, the Examiner concludes that it would have been obvious “to apply the grit of Igarashi as modified by Matsuda on the saw blade via a brazing technique as taught by Catlin to enhance the cutting action of the tool and obtain a desired degree of hardness and ductility.” Final Act. 5 (citing Catlin, 1:70–72).

Appellant contends that the Examiner’s proposed modification to Igarashi would defeat the intended purpose of Igarashi. *See, e.g.*, Appeal Br. 11. In this regard, Appellant asserts that Matsuda '721 teaches that the inclusion of holes along the edge is “important to the success of his blade” and Igarashi teaches “expressly that a continuous buffer layer is central to the success of his blade.” Appeal Br. 12–13.

In response, the Examiner finds that there is no requirement to incorporate holes in Igarashi when modifying Igarashi to include the details of the thin edge taught by Matsuda '721. Ans. 8–10.

In reply, Appellant argues that the incorporation of holes is critical to the functionality of Matsuda '721, and it is only via the use of improper hindsight that the Examiner modifies Igarashi without incorporating such holes. Reply Br. 1–2. In this regard, Appellant states “the holes are central to the success of Matsuda ['721] and at the heart of its teaching.” Reply Br. 2. Appellant also states “the nature of the teachings in Igarashi and Matsuda would not predictably lead those of ordinary skill in the art to the claimed invention.” Reply Br. 2.

We do not agree with Appellant’s assertions regarding the importance of the holes. Matsuda '721 teaches the benefits of the thin edge as follows.

Firstly, due to the sectional thickness of the cutting part forming portion being made thinner than the sectional thickness of the band-shaped sheet, it enables a thinner section cutting part to be formed and thus the cutting width to be decreased, without making the overall sectional thickness of the band-shaped sheet thinner — i.e., without causing the strength of the band-shaped sheet to decrease.

Secondly, due to a stepped portion being formed as a result of the sectional thickness of the cutting part forming portion being made thinner than the sectional thickness of the band-shaped sheet, there is an increased bonding surface area for the fine grains of diamond that are to be bonded to the cutting part forming portion, and therefore their bonding strength can be increased.

Thirdly, because the stress acting during use on the fine grains of diamond in at least the vicinity of the above-mentioned stepped portion is received by the stepped portion as well, durability can be improved.

Matsuda '721, 4, ll. 6–19. Thus, Matsuda '721 describes certain benefits of the shape of the edge without requiring any holes in the blade. These benefits support the Examiner’s rationale for modifying Igarashi as proposed. Accordingly, we do not agree with Appellant that the Examiner’s

proposed modification would also require the addition of the holes of Matsuda '721 to the blade of Igarashi. Rather, the above-noted benefits would be provided even without such holes.

Appellant argues that the Examiner's proposed combination of Igarashi, Matsuda '721, and Catlin would require a person of skill in the art, "[w]ithout using hindsight, identify Catlin as a technique to be used[, and i]n making this choice, ignore the fact that neither Igarashi nor Matsuda discusses brazing, and also ignore the unattractiveness of the necessary and partial combination of Igarashi and Matsuda." Appeal Br. 14. Appellant also argues that the process of modifying Igarashi to provide all the elements recited in claim 1 "is so complex and uncertain, and requires so much hindsight, that it must be considered in its totality to be an inventive step, and cannot be considered an obvious step." Appeal Br. 14.

In response, the Examiner finds,

Appellant *admits* brazing allows hard material to cut hard materials quickly and reliably with less wear (Page 14, lines 29-30 and Page 15, lines 1-2). Therefore, per Appellant's admission, one would have been motivated [to] use the brazing technique as disclosed by Catlin to apply a cutting grit. Again, this is not hindsight, because there was a pre-existing motivation to employ brazing, for the purpose of cutting harder materials.

Ans. 10–11 (emphasis added).

In reply, Appellant argues that no such admission was made, and "[t]he advantages discovered by the Appellant and also referenced in the present specification are also improperly used as motivation for the purported modifications of the prior art in the Examiner's comments on page 11 of the Examiner's Answer." Reply Br. 3.

The portion of Catlin cited by the Examiner for the use of brazing material as recited in claim 1 states: “The strip is next fed through a tempering furnace for tempering the base metal to a desired degree of hardness and ductility.” Catlin, 1:70–72; *see* Final Act. 5. The text cited by the Examiner, read in context, does not relate to the benefits of using brazing material and instead relates to the benefits and properties provided by heat treatment. *See* Catlin, 1:57–72.

Although the above-noted portion of Catlin does not disclose the particular benefits of brazing to which the Examiner refers, i.e., obtaining “a desired degree of hardness and ductility” (*see* Final Act. 5), Catlin teaches that brazing allows alloying or interdiffusion of a blade’s base metal and a coating layer (*see, e.g.,* Catlin, 1:9–26). It would have been obvious to a person ordinary skill in the art to implement brazing in the coating of Igarashi to obtain these benefits. Further, a person of ordinary skill in the art could have substituted the brazing taught by Catlin for the electrodeposition process performed on the blade of Igarashi (*see* Igarashi, machine translation ¶¶ 3–4) with a reasonable expectation of success inasmuch as both references apply an abrasive coating to a metal blade (*see* Igarashi, machine translation ¶ 11; Catlin, Abstract). Additionally, this known technique would have provided predictable results as taught by Catlin. *See* Catlin, 1:9–26, 4:68–5:5, 6:40–52. Accordingly, we determine that this simple substitution of one element for another (replacing the electrodeposition taught by Igarashi with brazing) would have been obvious to a person of ordinary skill in the art.

We have reviewed all of Appellant’s arguments for the patentability of claim 1, but we do not agree with them. Accordingly, we affirm the

Examiner's rejection of claims 1, 4, 5, 19, 22, 23, 31, 32, 46, 49, and 50. As our reasoning differs from that relied upon by the Examiner, we designate our affirmance a NEW GROUND of rejection.

Rejections (II)–(IV)

Appellant relies only on the arguments discussed above to contest Rejections (II)–(IV). *See* Appeal Br. 15–16. Accordingly, for the reasons discussed above, we affirm Rejections (II)–(IV), and we designate our affirmance a NEW GROUND of rejection.

DECISION

The Examiner's decision to reject claims 1, 4, 5, 19, 20, 22, 23, 31, 32, 46, 47, and 49–52 is affirmed.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.”

37 C.F.R. § 41.50(b) also provides:

When the Board enters such a non-final decision, the appellant, within two months from the date of the decision, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner. The new ground of rejection is binding upon the examiner unless an amendment or new Evidence not previously of Record is made which, in the opinion

of the examiner, overcomes the new ground of rejection designated in the decision. Should the examiner reject the claims, appellant may again appeal to the Board pursuant to this subpart.

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. The request for rehearing must address any new ground of rejection and state with particularity the points believed to have been misapprehended or overlooked in entering the new ground of rejection and also state all other grounds upon which rehearing is sought.

Further guidance on responding to a new ground of rejection can be found in the Manual of Patent Examining Procedure § 1214.01.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED
37 C.F.R. § 41.50(b)